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Climate change may devastate crop yields

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Recent reports from scientists at Stanford University suggest that climate change could cause severe crop losses in south Asia and southern Africa over the next 20 years.

By 2030, southern Africa could lose almost a third of maize production, its main crop, while losses of many regional staples, such as rice and millet could be over 10% in south Asia. These findings build on those of the IPCC's 2007 reports, which the Met Office has taken a lead role in.

Their report into climate change impacts found that temperate crop yields could benefit slightly from local warming of 1 °C to 3 °C, but temperature rises above this could see yields falling in some regions.

But in the tropics declining crop yields are projected, regardless of the rate of local warming, although it may be possible to reduce or delay the impacts to some extent through adaptation.

Dr. Richard Betts, Head of Climate Impacts at the Met Office Hadley Centre, said: "This study clearly underlines the implications of climate change for international development. Meeting the Millennium Development Goals could be more challenging as a result of the changing climate. But further work is needed because the interactions between climate and crops are complex".

The Met Office Hadley Centre recently launched its Integrated Climate Programme (ICP), which in part aims to improve our understanding of how climate change could affect food production in the future. Richard explains: "Because of the many interactions between climate change and crops, we are working with the University of Reading to build crop models into our climate prediction model. This unique, fully integrated approach to climate impacts will help improve our predictions for food resources. For example our models recognise that crop yields, ecosystem changes and water resources interact closely with each other carbon dioxide in the atmosphere and the changing climate. Each aspect cannot be studied in isolation."

Within the programme, Met Office scientists will assess the uncertainties in climate predictions, and use this to evaluate risk in impacts assessments. Techniques to identify the likelihood of damaging climate change are also being developed - for example understanding why different climate models give different results, and whether we can have more confidence in some predictions than others.

Integrated Climate Programme (ICP) (PDF, 2.01 Mb)
Working Group II to the Fourth Assessment Report of the IPCC (PDF, 924 Kb)
Crops and Climate Group, University of Reading

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